

## DE Jumper Board

The Kantronics Internal Disconnect Jumper Board is designed to install on the modem disconnect headers of the Data Engine, providing the signals required to drive an external modem on the DB-15 connector. The Jumper Board may be installed on either (or both) port(s) of the Data Engine.

The Jumper Board has seven jumpers which allow you to configure the board to match the needs of your modem. You should configure the board prior to installing it on the disconnect headers. The purpose of each jumper is described below, as well as the corresponding pin assignments on the DB-15 when the board is installed.

Jumpers 6 and 7 select the TYPE of modem being used, according to the following chart:

JP6	JP7	Modem Type
OFF	OFF	None
ON	OFF	A
OFF	ON	B
ON	ON	C

When the Data Engine has a type A modem installed, the receive clock comes from the 85C30's DLL. The baud rate generator in the 85C30 is set to 32 times the baud rate specified by the MODEM command. This 32 times clock is available to the modem on the TRxC pin (pin 5 of the internal modem disconnect). The modem should provide the transmit clock to the 85C30's RTxC pin (pin 6 of the internal modem disconnect). This is normally accomplished by the modem taking the 32 times clock from TRxC and dividing it by 32, then feeding this back on the RTxC line. TxD and RxD are NRZI. Kantronics DE1200 modem is an example of a type A modem.

When a Type B modem is installed on the Data Engine the receive clock comes from the modem on the RTxC pin. The transmit clock also comes from the modem, on the TRxC pin. Both clocks should be equal to the data rate. No clock signals are provided from the Data Engine. Data is NRZI. The Kantronics DE9600 modem is a type B modem.

When a Type C modem is installed on the Data Engine the receive clock comes from the modem on the RTxC pin. The transmit clock comes from the 85C30's internal baud

rate generator on the TRxC pin, and is the baud rate specified by the MODEM command. A 16 times clock (16 times the transmit clock) is also available on the TOUT pin. NOTE that this pin is shared by BOTH modems and therefore you cannot install two type C modems with different baud rates. The 16 times clock is generated by a clock generator in the V40. This clock may not be exactly 16 times the transmit clock because of truncation in the separate timer. The external G3RUH modem or K9NG modem are examples of a type C modem.

The Jumper Board supplies the following connections to the rear panel at all times.

Signal	Description	DB-15 pin
TxD	Transmit Data	1
RxD	Received Data	2
RTxC	Receive Clock	4
DCD	Data Carrier Detect	7
TOUT2	16x Clock (Type C)	12
GND	Ground	11

Optionally, you may install the jumper indicated below to obtain the following:

DB-15	Jmp	Signal	Description	pin
	JP3	TRxC	Transmit Clock	3
	JP4	CTS	Clear To Send	6
	JP5	DTR	Data Term. Ready	8

In addition to all of this, the Jumper Board also has a built-in Push-To-Talk circuit (PTT) and watchdog timer. This internal PTT/Watchdog combination is activated by placing jumper JP1 on the center post and the post closest to Q2. The watchdog timer is set for approximately 15 seconds, and may be disabled by placing jumper JP2 on both posts. If you need to change the duration of the timeout, simply change the value of C4. Larger values give a longer time-out timer.

If your external modem already provides its own PTT circuitry, you can place jumper JP1 on the center post and the post closest to Q1, thus passing the RTS signal from the Data Engine straight through to your modem's PTT circuit.

This PTT or RTS signal will appear on pin 5 of the rear panel DB-15 connector.

